

graphic). This token contains other representational tokens of that same type. Whether the tokens are objects or states is of no consequence.

That completes my discussion of the problem of ownership. I want next to turn to pains.

#### 4.5 Pains

It is often supposed that terms applied to pain that also apply to physical objects do not have their ordinary meanings. Ned Block, who takes this view, says,

There is some reason to think that there is a systematic difference in meaning between certain predicates applied to physical objects and the same predicates applied to mental particulars. Consider a nonimagery example: the predicate '\_\_\_\_\_ in \_\_\_\_\_'. This predicate appears in each premise and the conclusion of this argument:

The pain is in my fingertip.  
The fingertip is in my mouth.  
Therefore, the pain is in my mouth.

This argument is valid for the "in" of spatial enclosure . . . , since "in" in this sense is transitive. But suppose that the two premises are true in their *ordinary* meanings. . . . The conclusion obviously does not follow, so we must conclude that "in" is not used in the spatial enclosure sense in all three statements. It certainly seems plausible that "in" as applied in locating pains differs in meaning systematically from the standard spatial enclosure sense. (Block 1983, p. 517; see also Jackson 1977, p. 76)

This seems to me quite wrong. There is no more reason to adopt the strange position that 'in' has a special meaning in connection with pain than there is to say that 'orange' has a special meaning in connection with images. The inference Block cites certainly does *not* establish his claim. To see this, consider the following inference:

I want to be in City Hall.  
City Hall is in a ghetto.  
Therefore, I want to be in a ghetto.

The term 'in' has the same meaning in both premises and the conclusion. But the argument is invalid: I might want to be in City Hall to listen to a particular speech, say, without thereby wanting to be in a ghetto. The same is true, I suggest, in the case of Block's example, and the explanation

is the same. In both the first premise and the conclusion, the term 'in' appears in an intensional context. Just as when we say that an image is blue, we are saying that it represents that something is blue, so when we say that a pain is in my fingertip, we are saying that it represents that something is in my fingertip.

It is perhaps worth noting here that the invalidity of the inference involving pain has nothing to do with the fact that the mouth is a cavity of a certain sort, and hence an item whose ontological status might itself be questioned. If I have a pain in my fingertip and I slit open a small portion of my leg, into which I then thrust my finger, still it does not follow that I have a pain in my leg. Suppose, for example, that my leg has been anesthetized. In this case, I feel a pain in my finger, but not in my leg.<sup>19</sup>

That there is a hidden intensionality in statements of pain location is confirmed by our talk of pains in phantom limbs. We allow it to be true on occasion that people are subject to pains in limbs that no longer exist. For example, a patient who has had his leg amputated may report feeling pains in the leg in places where he had experienced pain previously. Pains are also sometimes felt in phantoms of other body parts. For example, one man, who underwent amputation of his penis, felt severe pain in the phantom penis. Another, I might add, reported feeling a painless, but continually erect penis for a four-year period following the amputation (see Melzack 1990).

How can pains be felt in phantom limbs? Answer: You can have a pain in your left leg even though you have no left leg, just as you can search for the Fountain of Youth. Again the context is intensional: specifically, you have a pain that represents that something is in your left leg.<sup>20</sup> Of course, there is some temptation to say that if you do not have a left leg, then you cannot really have a pain in it. But that is no problem for my proposal. For there is an alternative (de re) reading of the context, namely, that to have a pain in your left leg is for your left leg to be such that you have a pain in it. Now a left leg is required.

But does not a pain in the leg represent more than just that something is in the leg? Why, yes. To have a pain is to feel a pain, and to feel a pain is to experience pain. Thus, if I have a pain, I undergo a token experience of a certain sort. This token experience is the particular pain

I have. Now in optimal conditions, sensory experiences of the pain sort track certain sorts of disturbances in the body, paradigmatically, bodily damage. So pains represent such disturbances.

For example, a twinge of pain represents a mild, brief disturbance. A throbbing pain represents a rapidly pulsing disturbance. Aches represent disorders that occur *inside* the body rather than on the surface. These disorders are represented as having volume, as gradually beginning and ending, as increasing in severity and then slowly fading away.<sup>21</sup> The volumes so represented are not represented as precise or sharply bounded. This is why aches are not felt to have precise locations, unlike pricking pains, for example. A stabbing pain is one that represents sudden damage over a particular well-defined bodily region. This region is represented as having volume (rather than being two-dimensional), as being the shape of something sharp-edged and pointed (like that of a dagger).<sup>22</sup> In the case of a pricking pain, the relevant damage is represented as having a sudden beginning and ending on the surface or just below, and as covering a very tiny area. A racking pain is one that represents that the damage involves the stretching of internal body parts (e.g., muscles).

In each of the above cases, the subject of the pain undergoes a sensory representation of a certain sort of bodily disturbance. The disturbances vary with the pains. Consider, for example, a pricking pain in the leg. Here, it seems phenomenologically undeniable that pricking is experienced *as* a feature tokened within the leg, and not as an intrinsic feature of the experience itself. What is experienced as being pricked is a part of the surface of the leg. This is nicely accounted for by the above proposal. It should also be noted that since pricking pains do not represent pins, my account does not have the implausible consequence that creatures who live in worlds without pins cannot have pricking sensations or that in these worlds creatures undergoing such sensations are misrepresenting what is going on in them.

My proposal, then, is that pains are sensory representations of bodily damage or disorder. More fully, they are mechanical responses to the relevant bodily changes in the same way that basic visual sensations are mechanical responses to proximate visual stimuli. In the case of pain, the receptors (known as nociceptors) are distributed throughout the body. These receptors function analogously to the receptors on the retina. They

are transducers. They are sensitive only to certain changes in the tissue to which they are directly connected (typically, damage), and they convert this input immediately into symbols. Representations are then built up mechanically of internal bodily changes, just as representations are built up of external surfaces in the case of vision. These representations, to repeat, are sensory. They involve no concepts. One does not need to be able to conceptualize a given bodily disturbance in order to feel pain. And even if one can, it is not relevant, because feeling pain demands the sensory experience of that disturbance.

It is interesting to note that there are circumstances in which people cannot tell whether they are feeling pressure or pain, for example, during dental drilling under partial anesthetic. This has a simple explanation on the above account. Both sensations involve the representation of a bodily disturbance. Some disturbances—tissue distortions of certain sorts—fall on the border between those paradigmatic of pain and those paradigmatic of pressure. Sensory representations of such disturbances are neither clearly pain experiences nor clearly pressure experiences.

Perhaps it will now be said that it is not clear how the above proposal accommodates the well-established fact that pain is susceptible to top-down influences. For example, in one experiment, joggers were found to run faster in a lovely wooded area than on a track. Apparently, they experienced less pain in their arms and legs while viewing the trees and flowers and, as a result, ran at a quicker pace.<sup>23</sup> There is also the interesting case of some Scottish terriers raised in restricted environments. When released, Melzack tells us, they behaved as follows:

They were so frisky and rambunctious that inevitably someone would accidentally step on their tails. But we didn't hear a squeak from them. In their excitement, they would also bang their heads with a resounding smack on the building's low water pipes and just walk away. I was curious, and lit a match to see how they would respond to the flame. They kept sticking their noses in it, and though they would back off as if from a funny smell, they did not react as if hurt. (Melzack, quoted in Warga 1987, p. 52)

Anxiety, by contrast, increases the experience of pain, as, for example, when one compares a present injury to some past one.

These facts, if indeed they are facts (see below), about pain are no threat to my position. They may be explained by supposing that the pain

receptor pathway in the spinal column leading to the somatosensory cortex (the primary center of pain) has a gate in it that is controlled by input from the higher brain centers (the gate control theory).<sup>24</sup> When this gate is partly closed, less information gets through, and the feeling of pain diminishes. As it opens further, more information is enabled to pass. Anxiety, excitement, joy, concentration, and other higher-level activities affect the orientation of the gate. So, the fact that the experience of pain is, *in the above sense*, cognitively penetrable presents no real difficulty for my proposal. What happens is simply that one's cognitive assessment of the situation feeds back down into the sensory module for the experience of pain and affects how much information gets through about bodily damage.

I might add that it is also not obvious to what degree the experience of pain itself, considered as a sensory state, really can be changed by the cognitive centers. What seems undeniable is that cognitive reactions can affect one's *awareness* of pain experiences. But awareness of a pain experience is itself a cognitive state. It involves bringing the experience under concepts. These concepts are what allow us to form conceptions through introspection of what it is like for us to undergo the experiences.

Unless we apply such concepts, we are oblivious to our experiences. We are like the distracted driver who is lost in thought for several miles as he drives along. During this time he keeps the car on the road and perhaps changes gears. So he certainly sees the road and other cars.<sup>25</sup> But he is not aware of his visual sensations. He is not paying any attention to them. In short, he has no thoughts about his perceptions—his thoughts lie elsewhere.

Consciousness of the sort the driver lacks is not phenomenal consciousness. Rather it is what I called in chapter 1 higher-order consciousness. Consciousness, in this sense, is consciousness of one's own mental states. For that, concepts *are* required.

This point—that sensory experiences demand concepts in order for their subjects to be aware of them—is a significant one, to which I shall return later. My present interest in the point pertains only to the issue of evidence for cognitive penetrability.

So far I have said nothing directly about the painfulness of pains. How is this feature of pains to be accounted for within the above proposal?

To begin with, it should be noted that we often speak of bodily damage as painful. When it is said that a cut or a burn or a bruise is painful or hurts, what is meant is (roughly) that it is *causing* a feeling, namely, the very feeling the person is undergoing, and that this feeling elicits an immediate dislike for itself together with anxiety about, or concern for, the state of the bodily region where the disturbance feels located.

Now pains do not themselves cause feelings that cause dislike: they *are* such feelings, at least in typical cases. So pains are not painful in the above sense. Still, they are painful in a slightly weaker sense: they typically elicit the *cognitive* reactions described above. Moreover, when we introspect our pains, we are aware of their sensory contents as painful. This is why, if I have a pain in my leg, intuitively, I am aware of something in my leg (and not in my head, which is where the experience itself is) as painful. My pain represents damage in my leg, and I then cognitively classify that damage as painful (via the application of the concept *painful* in introspection).

In normal circumstances, a person who has a pain in a leg and who reports that something in her leg is painful is not under any sort of illusion. But a man who reports to his doctor that he has a pain in his left arm is in a different situation if it is discovered that the real cause of his pain lies in his heart. Such a man has a pain in his left arm—the undergoes a sensory experience that represents to him damage there—but there really is nothing *in his left arm* that is painful. What is painful is something happening in his heart.

Pains, I conclude, like afterimages, have representational content. Unlike images, however, they have bodily locations (in the representational sense I have elucidated).<sup>26</sup> So although pains are really constituted by physical processes in the head, it is also true to say that they can occur anywhere in the body.<sup>27</sup>

#### 4.6 Other Bodily Sensations

The intentionalist approach to pain extends in a natural way to all bodily sensations. To have a tickle in a toe is to undergo a certain sort of experience. What experiences of the tickle sort track (in optimal conditions) is the presence of something lightly touching or brushing against

the surface of the body. So that is what they represent. Ticksles are sensory representations of bodily disturbances, just as pains are. Ticksles also have a standard reactive component (like pains in normal cases); they cause an impulse to break contact with the object brushing lightly against the skin, together with a further desire to rub or scratch the affected bodily region, if contact continues.

Itches also represent surface disturbances, though not ones of the same sort as ticksles. In addition, itches cause in their owners reactions of dislike (less intense than for pains) plus the impulse to rub or scratch the relevant bodily part.<sup>28</sup>

Tingling sensations represent patterns of bodily disturbance that consist of a large number of tiny distinct parts, each of which is quickly varying or pulsating. The feeling of thirst represents dryness in the throat and mouth. Feeling hot is a state that represents an increase in body temperature above the normal one. Hunger pangs represent contractions of the stomach walls when the stomach is empty.<sup>29</sup> In these cases, the representations themselves are sensory experiences, not conceptual states. So the fact that for some bodily sensations—for example, the feeling of hunger—the person in the street may not be able to say just which bodily state is represented has no significance. Whereof you cannot speak (or think), thereof you can still sense.

#### Box 4.5

That the experience of hunger pangs tracks contractions of the stomach walls, all being well (and hence, on my account, represents those contractions), was first established by W. Cannon and A. Washburn in 1912. Washburn inserted a tube into his stomach for several hours each day. At the end of the tube was a balloon that was inflated to fit the stomach walls. The stomach tube was attached to a manometer (which measured sudden pressure changes). A pneumograph was also connected to the waist with the aim of registering movements in the abdominal muscles. Washburn pressed a button whenever he felt pangs of hunger. These pangs were found to correlate perfectly with strong stomach contractions. As the psychologist Frank Geldard notes in his discussion of hunger,

The simple conclusion would seem to be indicated that feelings of hunger are caused by stomach contractions and thus are kinesthetic sensations of a certain pattern. (1953, pp. 244–45)